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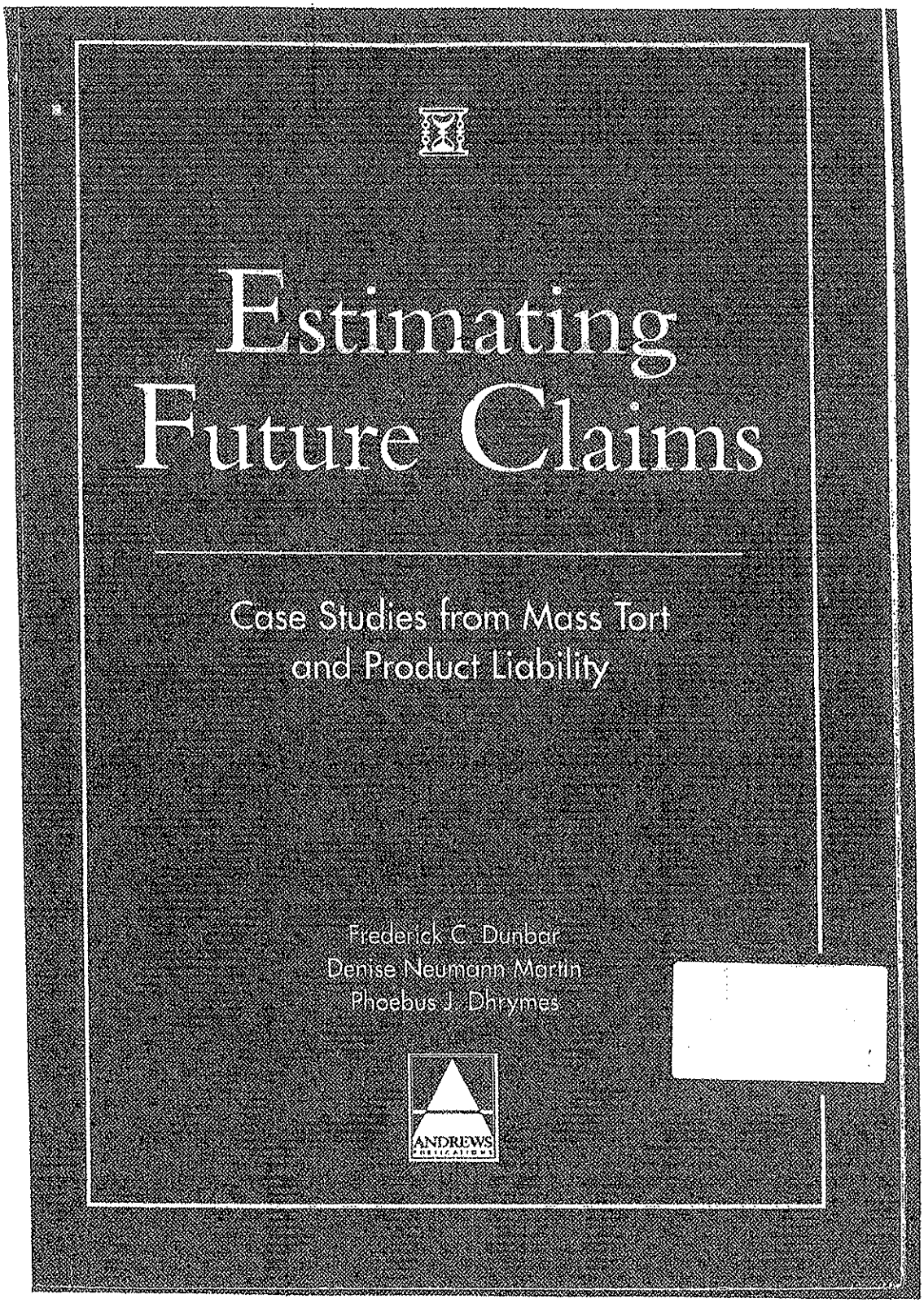
Estimating
Future Claims
Case Studies from Mass Tort
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Frederick C. Dunbar
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ANDREWS

Estimating Future Claims CASE STUDIES FROM MASS TORT AND PRODUCT LIABILITY

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Chapter 1
Introduction

I. BACKGROUND

In August 1982, Johns-Manville took the well-publicized step of filing for bankruptcy protection to bring order to its mounting asbestos liabilities. The Manville action was unique: It was the first time that an otherwise healthy operating company took bankruptcy as a route to removing itself as a defendant from the traditional tort law system. Indeed, it was the first time since Moody's had been monitoring performance that a company whose debt and commercial paper was rated investment grade announced that it would default.[1] In fact, technically, Manville was solvent—it had not run out of cash at the time it filed for protection. Rather, it was an action based upon anticipation of financial disaster at some time in the future. Manville had projected that within several years it would not be able to make payments to future asbestos claimants. The projections themselves and their authors made the front pages of national newspapers. Although it is not exactly right to call this event the birth of mass tort estimation, it certainly elevated the subject to a new and much more visible level.

Since then, forecasting mass tort liabilities has become an identifiable discipline that is necessary in a number of circumstances:

> *Management and Corporate Governance.* As the Manville example shows, a forecast of exposure can prepare a company to manage its future liability efficiently. A defendant firm may have been receiving a

significant number of claims and wish to determine whether it can continue to pay claimants on a dollar-for-dollar basis.[2] An exposure estimate may demonstrate that such a payment scheme will leave the firm with inadequate assets to pay future claimants.

Even a defendant firm not facing a life-threatening number of liabilities will need to make an occasional assessment. A company may have been receiving a trickle of claims over time and may want to determine an appropriate reserve for its financial statements. There may also be some need to examine whether this claims path is likely to escalate.

Estimation for a Trust or Settlement. In the aftermath of the Manville filing, the court attempted to establish a trust of sufficient size to compensate pending and anticipated future claimants. All future claims were then routed through the trust. This general procedure has been used several times since *Manville I*, the name given to the initial effort.[3] One purpose is to remove the mass tort from the traditional tort law system to bring more order, efficiency and fairness to the process of liquidating claims. Often, another purpose is to insulate a potential successor company against future, uncertain liabilities. Sometimes, the firm can emerge from bankruptcy unencumbered by these liabilities.

As part of the trust formation process, various parties to the bankruptcy proceeding provide the court with various estimates of present and future liabilities, which are used by the court to size the trust so as to provide equity to future as well as pending claimants. Forecasts of future claims are especially important in the process. The court can approve a plan only if it is fair and reasonable. Indeed, the court itself may appoint an expert to estimate future claims. Also, because of due process or ethical concerns, the court may appoint a representative of future claimants who will seek independent evaluation of the number of future claims versus the size of the proposed trust.

The projections of future asbestos liabilities for *Manville I* proved to be underestimates.[4] This performance gained some notoriety when the *Manville I* Trust collapsed from having too few resources relative to the unanticipated magnitude of the future awards. However, there was no reason for the authors of the estimates to be embarrassed—virtually everyone else at this time was also underforecasting the extent of future claims—a subject that will be explored in more depth below.[5] More accurate estimations in the trust formation context also exist but have been less publicized. For example, the A.H. Robins bankruptcy court was provided with forecasts of future Dalkon Shield claimants

that differed by an order of magnitude, but the court chose an estimate in the middle of the range that proved to be relatively accurate—in fact, it was a slight overestimate.[6] As a result, the Dalkon Shield Claimants Trust has been appropriately funded.

Similarly, estimates made in the National Gypsum bankruptcy proved to be much more accurate than those for *Manville I*. These estimates were made almost a decade after *Manville I* and had the benefit of much more data, including claims history, and significant methodological development. Class action settlements have been used successfully to resolve pending and future liabilities in some mass torts.[7] Parties to the settlement will often need to estimate the number of claimants to ensure there are enough resources to give each claimant the intended award. Here, too, the court has a responsibility to approve such a settlement only if it is reasonable and fair. Perceptions of the fairness and stability of the settlement will depend on whether the amounts available in the settlement will adequately compensate present and future claimants. Claims forecasts assist the court in deciding whether to approve the settlement. Again, the court may appoint its own expert or a guardian for future claimants to assure independence in the evaluation of whether the settlement balances the interests of the present and future claimants.

Conveyance of Assets. An exposure estimate at the time of a sale or other disposition of assets, including dividend payments, may be prudent. In particular, a court may find *ex post* that a firm committed a fraudulent conveyance if rational expectations regarding its exposure to mass tort claims rendered it technically insolvent at the time of the conveyance.

Fraudulent conveyance actions create another need for expertise in forecasting future liabilities. Plaintiffs in such actions, including creditors suffering asbestos-related injuries, will claim that management underforecast the future exposure. Defendants will respond with a showing that their expectations at the time of the conveyance were reasonable based on what was known at the time. Both sides will engage experts who will have been asked to determine the reasonableness of the past forecasts.

Risk Management. Even after a product or event reaches the status of a mass tort, a market can develop in the liabilities. Although the fact of liability will have been established, the number and amount of claims will be uncertain. The defendant may choose to buy insurance

to cover some of these risks. Both the defendant's risk manager and the insurer's actuaries will be called upon to provide forecasts so as to set premia.

Often the acquisition of a firm or division will involve some consideration of contingent liabilities. Some due diligence on the expected future product liabilities may be prudent in certain corporate acquisitions.

In addition, insurers in an industry where mass tort exposure has become a problem may wish to estimate the portion of future claims that would be covered under their respective plans. Coverage for claims resulting from exposure to a toxic substance is usually figured under what has become known as the continuous trigger theory. Although there is no precise formula for allocating claims under this theory, it is likely that relative burdens among insurers are associated with the risk caused by the insured during the time period the insurer was providing coverage. Such risks, in turn, are related to the proportion of the number of years the insurer provided coverage, as well as factors related to numbers of plaintiffs exposed, numbers that had latent diseases, numbers that manifested diseases and the activity engaged in by the defendant.

It is unlikely that the need for estimation will diminish in the future. The nature of bringing innovative products to the market is such that there is usually some risk, albeit slight, of malfunction or unintended health effects. The plaintiffs' bar is now well-equipped and motivated to exploit any product liability opportunity.

Although all of the entities involved in mass tort litigation—plaintiffs, defendants and the courts—have a vested interest in estimating the dollar liability of the mass tort defendant, relatively little has been published to offer guidance on how to make such an estimate. Most of the work in this area is confidential. The forecasts made for management and boards of directors are kept secret so as not to weaken a defendant's position in ongoing litigation, and the forecasts used to set insurance premia are also secret so as not to weaken price negotiating positions. Most forecasts made for court proceedings—such as in bankruptcies—are sealed. For example, although the testimony of experts on the forecasts of claims made against the Dalkon Shield Claimants Trust is publicly available, none of the exhibits or experts' reports are available.

One would think that the academic literature might fill such a void, because of the technical nature of such exercises. However, such a

search would prove nearly fruitless. Although there may be a number of scientific studies relating to the epidemiology of a disease caused by a mass tort, there is remarkably little quantification of how the incidence and prevalence of the condition are converted into claims.

The need for some coherent description of estimation issues has been increased by the Supreme Court's recent decision in *Daubert v. Merrell Dow*. There, the court gave guidelines as to what constituted admissible expert testimony. When forecasts of future mass tort exposure are presented in court, as will often be the case, the *Daubert* standards will apply to the analysis on which the testimony is based.

Recently, the Federal Judicial Center issued guidance on scientific expert testimony in a number of areas, including epidemiology–but excluding projections of the number of future claims and their dollar value.[8] In that same volume, Professor Berger gives general standards which the court will apply in allowing expert testimony.[9]

1. Is the expert qualified?
2. Is the expert's opinion supported by scientific reasoning or methodology?
3. Is the expert's opinion based on reliable data?
4. Is the expert's opinion so confusing or prejudicial that it should be excluded pursuant to Rule 403?

One of the purposes of this book is to describe the approaches that have found professional validity in projecting claims in mass torts, particularly asbestos where the most information is available.

II. OVERVIEW

This book provides guidance to those interested in understanding mass torts with a view to estimating defendants' liabilities. Mass torts, of course, are of different types: some involve property damage, whereas others involve personal injuries; some are the result of a single accident affecting a known, closed population, whereas others involve a product that exposes an unknown population over a number of years to a hazard whose consequences are not clearly understood but include injuries with long latencies. While we hope this book will be valuable to those attempting to estimate exposure for any type of liability, our focus will be

more on the latter type of mass tort. This direction is manifested in our choice of asbestos as the primary example to illustrate the estimation principles developed in the earlier chapters.

Chapter Two describes mass torts. It presents a classification and list of the past, present and emerging mass torts. Over the past decade, certain patterns have emerged that allow us to quantify such important variables as the rate at which an exposed population will make a claim, as well as the average value of these claims. Although it is acknowledged that in the history of estimation there have been substantial underforecasts, the performance of these early efforts is understandable because of innovations—both legal and behavioral—that have occurred since then.

If there is a single most important premise to Chapter Two, it is that the dynamics of the rate at which an exposed population with an injury is converted into claims (the propensity to sue) are best understood as a set of behavioral cause and effect relationships. Moreover, these relationships can now be described as a result of observing the behavior of the various principals—plaintiffs, plaintiffs' attorneys and defendants—over the past decade in various mass torts.[10] Consequently, we devote a section to each of these in this chapter. The issues covered include how potential plaintiffs are generated, the entrepreneurial activity of the plaintiffs' bar and the strategies of defendants to remove themselves from the traditional tort law system.

Chapter Three reviews the techniques used to estimate the number and dollar value of future mass tort claims. In this review, we identify the data and assumptions necessary to each stage of the estimation process. We discuss how the availability of key input data (*i.e.*, an estimate of the exposed population, an estimate of the probability of disease or injury given exposure and/or an observed incidence or claims history) may affect the choice among estimation models. Estimation and use of alternative inputs is documented with an examination of historical mass tort litigations.

Also in Chapter Three, the estimation of the dollar liability associated with mass tort claims is investigated. We consider how such liability varies with factors that are theoretically justified (*i.e.*, based upon economic loss), as well as factors that have no apparent basis in theory (such as jurisdiction of filing).

An appendix to Chapter Three represents mathematically the estimation framework—this is virtually the only place in the book where math

is used. The appendix also includes an analysis of the econometric issues that may arise in estimating mass tort claims and the associated dollar liability.

Using asbestos as a case study, Chapter Four demonstrates how claims estimation techniques have been applied during the extended history of asbestos litigation. We review factors that affect the estimation process, as well as critique and suggest modifications to each method.

Chapter Five performs a similar exercise, instead examining the dollar liability associated with asbestos-related personal injury claims.

ENDNOTES

1. Fons, Jerome S. and Karl Bergquist, "Commercial Paper Defaults, 1970-1993," New York: Moody's Investors Service, February 1994, p. 11.
2. The defendant company is typically the manufacturer of a defective product, input or a toxic substance. Direct employees of the company are covered under workers' compensation and are, therefore, ineligible to file a claim against the company. Potential claimants are those who have used the product as an input in another occupational setting or have consumed the product as an end-user.
3. The use of trusts and other procedures to aggregate mass tort claims is described in Chapter Two. The asbestos experience with trusts is described in Chapter Four.
4. *Findley et al. v. Manville Personal Injury Settlement Trust,* 129 Bankruptcy Reporter 710, Eastern and Southern Districts of New York, June 27, 1991; p. 732.
5. Nonetheless, the perceived problem of inaccurate forecasts led to proposals for different methods of disbursing funds to claimants using securities collateralized by the fund. This approach would leave the forecasting problem in the hands of capital markets, which are assumed by various proponents to be more accurate than courts. See Thomas A. Smith, "A Capital Markets Approach to Mass Tort Bankruptcy," 104 *Yale L.J.* 367 (1994).
6. Vairo, Georgene, "The Dalkon Shield Claimants Trust: Paradigm Lost (or Found)?" 61 *Fordham L. Rev.* 617 December 1992.
7. See discussion of class actions in Chapter Two.
8. Weinstein's Evidence, United States Rules, Special Supplement 1995. Reference Manual on Scientific Evidence. Joseph M. McLaughlin, U.S. Circuit Judge–Second Circuit, Editor-in-Chief. (Reprinted with permission from The Federal Judicial Center).
9. Berger, Margaret A., "Evidentiary Framework," Weinstein's Evidence, United States Rules, Special Supplement 1995. Reference Manual on

Scientific Evidence. Joseph M. McLaughlin, U.S. Circuit Judge–Second Circuit, Editor-in-Chief. (Reprinted with permission from The Federal Judicial Center).

10. There are clearly other actors in mass torts, but we view them as being agents, such as defendants' attorneys and insurers, or as being predictable on the basis of the law, such as courts.

For the time period of the projection, therefore, Conning & Co. estimated that the total number of claimants, both present and potential future, would range from 83,000 to 178,000. Conning & Co. made a further assumption that 50% of those claimants' cases would be resolved without payment, hence reducing the range of successful claimants to 40,000 to 90,000. In their projections, Conning & Co. assumed a 20- to 30-year lag in reporting claims and expected that reporting of asbestos claims would peak during the 1980s and that, after the year 2010, both exposure levels and claim incidence would be minimal.[131]

b. MacAvoy

Also in 1982, MacAvoy prepared an estimate of future asbestos-related liability, focusing in particular on the likely financial effect on the insurance industry. In his projections, MacAvoy combined the incidence estimates that Enterline, Nicholson and Hogan and Hoel used to forecast asbestos-related cancer deaths from 1980 to 2015. He extrapolated from Selikoff's data to estimate the number of asbestosis deaths over the same years. MacAvoy's best projection was that 254,241 asbestos-related cancer deaths and 10,532 asbestosis deaths would occur in this time period.[132]

MacAvoy estimated that the probability of a claim's being filed given an asbestos-related death was 32%, based on a survey of a sample of insulator workers in the United States and Canada. Using the historical trend in their filing rate, he estimated this figure would increase by 4% per year, reaching 100% by 1995.[133] Applying these percentages to his incidence forecasts, he estimated that approximately 200,000 claims would be filed in the years from 1980 to 2015.

B. Application of Probability of Disease to Exposed Population

1. The Nicholson Approach

Dr. William J. Nicholson (1981, 1982) generated and then applied the probability of developing an asbestos-related cancer given exposure to his estimate of potentially exposed workers to forecast the incidence of asbestos-related disease from 1980 to 2030. As noted above, he estimated that 27.5 million workers were occupationally exposed to asbestos, of which 14.1 million were still alive in 1980.[134]

Since Nicholson prepared his estimates prior to the general acceptance of specific dose/response relationships for lung cancer and mesothelioma, he was required to develop his own probability function. Using a case study of 17,800 insulation workers by Selikoff, Hammond and Seidman, he concluded that the dose/response relationship for lung cancer is of such a nature that "the dose of asbestos received in a given period of time increases the risk of cancer by an amount that is proportional to that which existed in the absence of exposure. This increased RR [relative risk] is proportional to the dose of inhaled asbestos, which in turn is proportional to the time worked."[135] He concluded that the increase in lung cancer begins 7.5 years following first exposure and increases linearly until the termination of employment. Following last exposure, he concluded that the rate of increase diminishes, falling to one during the next 30 years.

For mesothelioma, for which Nicholson assumed there was no background rate in the absence of exposure to asbestos, he concluded that the absolute risk of death is directly related to the onset of exposure, but is independent of the age at which exposure begins.[136] In particular, he found that the risk of death from mesothelioma increases for 45 to 50 years following first exposure, and then falls.

Since the 17,800 workers in the Selikoff sample were all insulators, Nicholson needed to develop exposure risk factors for each of the other 11 potentially exposed industries and occupations relative to the exposure of insulators. To do so, he used three indices: (1) he obtained direct measurements of mortality from lung cancer and mesothelioma in these industries; (2) he obtained estimates of the average concentrations of asbestos attributable to the work activity in question; and (3) he obtained data on the prevalence of x-ray abnormalities after long-term employment in each potentially exposed trade.

Using his estimates of employees potentially at risk, the relative exposure of these workers (as compared to insulators), the average duration of employment in each industry and the age distribution of new hires, Nicholson forecasted that from 1980 to 2029, 350,035 cancer deaths would be caused by asbestos exposure.[137]

2. Use of Nicholson Approach to Forecast Claims

Because Nicholson was interested only in disease incidence, he did not need to develop a technique to translate this incidence forecast into a claims forecast. His approach to calculating incidence, however, was

subsequently adopted by several experts attempting to forecast future claims against UNR Industries, Inc., Pacor, Inc., Amatex Corp., National Gypsum, Fibreboard, Eagle-Picher and Celotex.[138] To estimate the probability of filing, these forecasters calculated the ratio of historical claims against each company to estimates of the exposed population from the Nicholson study to produce "claim frequency rates" or "filing rates." These rates were typically calculated separately for each disease and for different age cohorts. Where possible, the rates were also calculated according to the time of first and last exposure and by industry, to control for the intensity of the dose of asbestos exposure that was likely received.[139] By applying these rates to the exposed population as it ages, these forecasters were able to predict a stream of future claims.[140]

Since Nicholson did not prepare an estimate of nonmalignant disease incidence, those interested in estimating asbestos personal injury claims using his methodology have had to develop their own estimation procedure for these ailments. At least two different techniques have been used to estimate non-malignancies in the Nicholson framework. These approaches, with their justification, are described below:

(1) While nonmalignancies range from the very benign to the very severe, they have a common feature. In particular, at least 10 years from first exposure, small irregular opacities (SIO) begin to appear. Medical literature indicates the incidence of SIO in the exposed population is proportional to the cumulative exposure of this exposed population, lagged 10 years for the latency period.[141] Therefore, the ratio of nonmalignant filings to a measure of cumulative exposure has been used as the "filing rate" for non-malignant diseases.[142]

(2) Rather than relating nonmalignant disease to cumulative exposure, other forecasters have chosen to relate nonmalignant and malignant filings. This approach requires an assumption regarding the ratio of nonmalignant to malignant claims. Historically, the observed ratio has been approximately 7:1. However, the ratio is predicted to decline in the future, due to the latency period associated with malignant diseases. Some forecasters have assumed that the ratio of nonmalignant claims to cancer claims began to decline in 1987 and will reach 3:1 by 2027.[143]

128. McDonald, p. 79.
129. Lilienfeld (1988), pp. 286, 290.
130 Conning & Co., *The Potential Impact of Asbestos on the Insurance Industry*, September 1982, p. 16.
131. Conning, pp. 16-17.
132. MacAvoy, p. 37.
133. MacAvoy, p. 42.
134. Nicholson, William J., George Perkel and Irving J. Selikoff. "Occupational Exposure to Asbestos: Population at Risk and Projected Mortality 1980-2030," *American Journal of Industrial Medicine*, Volume 3 (1982), pp. 288-289.
135. Nicholson, pp. 289, 292.
136. Nicholson, p. 290.
137. Shearson, p. 5; Nicholson, p. 304, Table XXV.
138. See Towers, Perrin, Forster & Crosby, "Actuarial Study Regarding Actuarial Evaluation of UNR's Liability for Asbestos-Related Claims," Project Report Prepared for Presentation to the U.S. Bankruptcy Court for the Northern District of Illinois, *In Re: UNR Industries, Inc., et al.*, Nos. 82B9841 - 82B9851, February 27, 1985; Towers, Perrin, Forster & Crosby, "Actuarial Evaluation of Ultimate Liability for Asbestos-Related Claims," Project Report Prepared for Presentation to the U.S. Bankruptcy Court for the Eastern District of Pennsylvania, *In Re: Pacor, Inc., et al.*, No. 86-03251, November 6, 1987; Tillinghast, "Actuarial Evaluation of Ultimate Liability for Asbestos-Related Claims," Project Report Prepared for Presentation to the U.S. Bankruptcy Court for the Eastern District of Pennsylvania, *In Re: Amatex Corp., et al.*, No. 82-05220S, September 13, 1988; Peterson, M.A., "Liability of Celotex and Carey-Canada for Pending and Future Asbestos Personal Injury Claims," Legal Analysis Systems, Inc., October 18, 1993; Peterson, M.A., "Report Regarding Fibreboard's Projected Liabilities and Expenses for Asbestos Personal Injury Claims," Legal Analysis Systems, December 12, 1994; Peterson, M.A., "Findings Re: Liability of National Gypsum for Pending and Future Asbestos Personal Injury Claims," Legal Analysis Systems, Inc., July 6, 1992; and "Estimation of Company Liability Personal Injury," Volume I, KPMG Peat Marwick, Policy Economics Group.
139. Some experts have applied this approach assuming that these filing rates will decrease, rather than remain constant in the future, citing the aging population and the dwindling assets of the defendants. See, *e.g.*, Peterson National Gypsum report. This assumption was later endorsed by the Court:

> The aging of the population exposed to asbestos from NGC asbestos-containing products, the high present percentage of claimants who cannot articulate a disease when they commence litigation and the depletion of assets to pay claims will likely lead to a decrease in the value of claims and a corresponding decrease in the propensity to sue. While the

average date when future claims are expected to be settled.[35] In 1987 and 1988, respectively, a similar technique was used to value future claims predicted against Pacor and Amatex.

5. KPMG Peat Marwick/Legal Analysis Systems

In the National Gypsum litigation, experts from Peat Marwick and Legal Analysis Systems used historical averages of settlement values by occupation and disease to value future claims, as shown in the following table:[36]

Average National Gypsum Settlement Values as Calculated by KPMG Peat Marwick (1988 - 1991, nominal $)					
	Meso-thelioma	Lung Cancer	Other Cancer	Non-Malignant	Other
Shipyard	$2,843	$1,011	$381	$247	$46
Construction	$30,707	$10,130	$3,998	$2,562	$470
Insulator	$4,366	$1,776	$848	$580	$81
Other	$1,906	$3,806	$1,320	$969	$69
Unknown	$0	$0	$0	$0	$0
Average National Gypsum Settlement Values as Calculated by Legal Analysis Systems (1992 $)					
	$4,281	$1,730	$831	$363	N/A
Construction	$34,368	$10,793	$4,496	$2,331	N/A
Insulator	$6,265	$2,323	$1,151	$745	N/A
Other	$13,916	$5,277	$2,233	$1,459	N/A
Rubber	$3,787	$13	$4	$10	N/A

In forecasting the value of future claims, Peat Marwick further modified these estimates to account for the effects of aging on claim values that were suggested by the 1984 Rand study.[37] Mark Peterson from Legal Analysis Systems has used historical averages to estimate the future liability of a number of former asbestos or asbestos product manufacturers other than National Gypsum, including Celotex, Eagle Picher, Fibreboard and Manville.

C. Extrapolation Using Regression Analysis of Historical Values

1. Manville

In support of its Chapter 11 bankruptcy filing, Johns-Manville Corp. estimated that it would be required to spend approximately $2 billion on claims filed through the year 2001. To arrive at this figure, Herbert Kritzer, a consultant to Manville's board of directors, considered the disposition costs for 3,500 historical claims. Kritzer applied statistical smoothing techniques to estimate an average payment for each disease type and then took a weighted average of the diseases predicted in the future to conclude that $40,600 was the average payment per claim.[38]

2. Rand

In their 1984 study, Rand used multivariate regression analysis to analyze the effect of a variety of factors on the level of compensation paid on a random sample of 513 asbestos-related personal injury claims closed in the period from 1980 to 1982. The authors indicated that caution should be applied in using their results, as they did not have data on several factors they felt might be important: the severity of asbestosis diseases, the claimant's earning power, the strength of asbestos exposure evidence and the characteristics of the lawyers on both sides.[39] The use of regression analysis allowed Rand to "estimate the independent influence of each characteristic on compensation when all other characteristics are held constant."[40]

3. National Gypsum

In the National Gypsum litigation, NERA used regression analysis to determine the likely value of pending and future claims. Regression results on historical indemnity payments allowed generation of average